I. Project Title: **Ouray Fish National Hatchery**

II. Principal Investigator(s):

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III. Project Summary: Ouray National Fish Hatchery (ONFH) was established in 1996 as a fish refugia and technology development facility to assist in the recovery of razorback sucker, Colorado pikeminnow, bonytail, and humpback chub. ONFH is located 57 kilometers miles (km) southwest of Vernal, Utah, on the ONWR. The facility consists of an 114,000 liter (l) indoor recirculating hatchery with 21 2.4 meter (m) circular fiberglass tanks, 30 1.2 m circular fiberglass tanks and 30 1.2 m troughs. There are also 24 810 m^2 surface area ponds, and 12 2025 m^2 surface area ponds. The water source consists of six shallow wells (15 m deep) located near the Green River approximately 0.8 km from the hatchery. The hatchery has its administrative office located in a fisheries complex building shared with the CRFP, Utah Fish and Wildlife Management Assistance Office, and Jones Hole National Fish Hatchery in Vernal, Utah.

IV. Study Schedule:

On going

V. Relationship to RIPRAP:

General Recovery Program Support Action Plan

IV	Manage genetic integrity and augment or restore populations
IV.C.	Operate and maintain facilities
IV.C.1	Ouray

VI. Accomplishment of FY 2005 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

In April and May of 2005, ONFH spawned approximately 280 female and 280 male razorback sucker captive brood stock, on three different dates, resulting in 4,452,000 eggs and 1,352,160 larvae. The first spawn (04/19), was to produce fish for production purposes for ONFH. The second and third spawns (05/03 and 05/13 respectively) were to produce larvae for the Recovery Program to perform a larval drift study (see Table 1). ONFH retained approximately 50,000 larvae which are now being reared to meet the Integrated Stocking Plan which the Recovery Program has developed requiring 14,895 razorback suckers >300 mm stocked into the middle and lower Green River yearly for six years. The remaining fish (less mortalities) were used in the drift experiment, or stocked into Beaser Bend for field experiments.

Table 1. Date, spawn, number of eggs and larvae, and percent hatch for razorback sucker at ONFH in 2005.

Date	Spawn #	# of Eggs	# of Larvae	% Hatch
04/19/05	Spawn 1	1,020,000	468,000	46 %
05/03/05	Spawn 2	1,608,000	417,060	25 %
05/13/05	Spawn 3	1,824,000	467,100	26 %
Total	3 Spawns	4,452,000	1,352,160	30 %

The week of 14 March, 16,680 150 to 200 mm, 10 month old fish were stocked into the production ponds from the recirculating hatchery for grow-out to 300 millimeters (mm) by fall. On 10 May, double-crested cormorants (*Phalacrocorax auritus*) and great blue herons (*Ardea herodias*) were identified and seen preying on the razorbacks in the production ponds. Some effort was made to protect the fish n the ponds. Unfortunately, this did not stop the birds from decimating the numbers of fish in the ponds. Eventually, the ponds were drained and the remaining fish brought back inside the hatchery. This predation resulted in the loss of over 80 % of the 16,680 fish stocked into the ponds. Only 3,000 fish were recovered from the ponds. These fish were then grown intensively inside until they reached 300 mm and were stocked into the middle Green River at the ONWR boat ramp. In addition, 1,937 400 mm razorbacks were harvested from private grow out ponds and were stocked into the middle Green River as well. In 2005, ONFH PIT tagged and stocked into the middle Green River a total of 4,878 300 mm+ razorback suckers.

ONFH was successful in delaying the spawn of razorback sucker brood stock for nearly a month to provide larvae at the requested time for the Recovery Program to conduct larval drift studies on the middle Green River. This had been attempted before, but with very limited success. Brood stock were harvested from the ponds at ONFH a few weeks earlier than usual, (March 29th through 8 April, 2005), before pond temperatures reached 12 ° Celsius (C). They were brought inside the hatchery building where they were held in well water (also 12 ° C) until the time they

would be required to spawn. At that time, the temperature of the water in the tank they were being held in was gradually increased to 16 º C and they were given hormone injections to induce gamete production. This was done for three different groups of razorbacks to produce spawns at three different dates. This created lots of extra work for the staff but they rose to the occasion and made this effort successful. The larvae for the drift studies were marked (sometimes multiple times) and released into the middle Green River at three different flows and levels of flood plain inundation. Light traps were set in these flood plain areas and backwaters and larvae were collected. This study provides valuable insight into the natural life history of the razorback sucker. The ONFH played an important part in making this study a success.

ONFH is currently maintaining approximately 550 (25 lots) genetically sound Green River razorback sucker brood stock and continues to rear over 23,000 2005 razorback sucker to meet the Recovery Plan goal for 2006. After spawning in 2005, individual brood stock were evaluated for their productivity based on current and past performance. Ninety-two individuals were identified as non spawners, sexually unidentifiable, or were not identifiable to their lineage, and were stocked into the middle Green River.

Harvesting of the private leased grow-out ponds came to an end in 2005. These ponds proved to be hard to manage, and not cost effective. ONFH has the capacity to rear enough razorback suckers to meet or exceed stocking requirements and therefore these leases were allowed to expire. As part of the lease agreements, the USFWS was required to remove all razorback suckers from these ponds, before the termination of the lease. This was not difficult on all of the ponds, but on two in particular it proved to be extremely time consuming and costly. The situation dictated that we pump the ponds dry (no drainage structure and nearly over 9 m deep) and run seines and trap nets, and finally rotenone the remaining fish. We did not take rotenoning endangered fish lightly so an extended effort was made to harvest as many as possible, including 59 fish that needed to be recovered after the application of the rotenone. In total, 1,937 razorbacks were harvested out of these ponds almost all over 400 mm, and stocked into the middle Green River. We thank the U.S. Bureau of Reclamation (USBR) in Grand Junction, and ONWR for the use of two large pumps and a brand new tractor, without which this would not have been possible. We also thank the state of Utah Division of Wildlife Resources, for aiding in the final application of rotenone.

The ONFH staff conducted many tours of the facility for various groups and individuals in 2005. The hatchery also participated in the annual ONWR open house on 14 May. The public were able to see adult razorback brood stock, one year old razorbacks as well as razorback larvae. A total of 530 individuals toured the facilities in 2005.

Steve Severson is no longer managing ONFH, and has moved on to Jones Hole NFH. Mike Montagne (previously the biologist) has taken over as hatchery manager. William Stutz transferred down from Jones Hole NFH and now serves as the biologist at ONFH. Pat Kerins had back surgery last spring (workers compensation) and now seems to be on the road to recovery and has returned part time. Sam Pollock remains at ONFH as a biological technician and is looking to continue his education. Dave Irving remains as project leader of the complex, and Dolores Manning is our administrative assistant (also CRFP).

VII. Recommendations:

Continue operation and maintenance

VIII. Project Status:

On going fish culture

IX. FY 2005 Budget Status

A.	Funds Provided:	$
B.	Funds Expended:	$397,142
C.	Difference:	$ 0
D.	Percent of the FY 2005 work completed:	100%
E.	Recovery Program funds spent for publication charges:	$ 0

X. Status of Data Submission (where applicable): PIT tag data submitted to database manager by January 15, 2006.

XI. Signed: Mike Montagne
Principal Investigator Date 1/12/06

Figure 1. Ouray National Fish Hatchery Staff: (left to right) Sam Pollock, Pat Kerins, Bill Stutz, and Mike Montagne

Figure 2. Installation of bird netting over ponds to eliminate cormorant predation.